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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,402	07/18/2006	Jarkko Viinikanoja	868A.0076.U1(US)	2571
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EXAMINER				
LE, QUANG V				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/586,402

**Applicant(s)**

VIINIKANOJA ET AL.

**Examiner**

QUANG V. LE

**Art Unit**

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 19-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 19-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/3/2010 has been entered.

***Response to Arguments***

1. **Claim 1-9, 19-21 and 26-32** were amended by the applicant. This claim amendment is acknowledged.
2. The amendment to the Specification is acknowledged.
3. **Claim 1 and 30 objections.**

**Claim 1 and 30** amendments to overcome the claim objection are acknowledged. Therefore, the objection is withdrawn.

4. **Claim rejection 35 USC § 103(a).**

Applicant's arguments regarding the rejection **35 USC § 103(a)** of claims 1-9 and 19-32 have been fully considered but are moot in view of the new ground of rejection.

5. **Claims 1-9 and 19-32** have been examined and are pending.

***Information Disclosure Statement***

6. An initialed and dated copy of Applicant's IDS form 1449 is attached to the instant office action.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 1-9, 19-26 and 28-32** are rejected under 35 U.S.C. 102(b) as being anticipated by Katayama, US 5,699,108.

**As per claim 1**, Katayama teaches an apparatus comprising:

a camera module means configured to form data of an object located in an imaging direction, said camera module comprising at least two cameras **102 and 202**, where a mutual position (**baseline L**) of said at least two cameras **102 and 202** is configured to be adjusted to correspond to a determined imaging mode (col 3, lines 25-55, col 7, lines 10-41, "*The image pick-up optical systems 102 and 202 can be horizontally moved by a slide mechanism 10. With this operation, the base line length L*

*connecting rotation centers F1 and F2 of the two image pick-up optical systems is adjusted... signal related to the image pick-up state of each image pick-up optical system obtained by the microcomputer 11 in accordance with a predetermined image pick-up mode") and*

wherein the adjusting of the mutual position (**baseline L**) is configured such that altering mutual distance between the cameras **102 and 202** is configured to cause turning of the cameras **102 and 202** relative to each other, if the mutual position of the cameras do not correspond to the determined imaging mode (col 7, lines 10-41 and figures 1-9). (*Katayama teaches a multiple image pickup apparatus that has two image pickup modes, stereo (3D) mode and panoramic mode. For each mode, the baseline **L** (mutual distance between the two cameras) and the convergence angle  $\Theta$  are adjusted accordingly by the slider mechanism **10** and the convergence angle motors **104 and 204** respectively. The angle motors turn the cameras in relative to each other as cited in the claim. Upon switching to a different mode, if the baseline **L** does not correspond to the new mode, the processor will command the slider mechanism **10** and the convergence angle motor **104 and 204** to move the camera to the new **L** distance and angles respectively as cited in the claim*), and

a processor configured to process the data formed by the camera module, according to the determined imaging mode in order to form image information (col 7, lines 34-41).

**As per claim 2**, Katayama teaches the apparatus according to Claim 1, Katayama further teaches wherein the mutual position **L** of the cameras relative to each other is configured to be altered by the cameras being manually moved by the user (col 3, lines 45-55). *The user moves the mutual position **L** of the camera by manually changing the image pickup mode.*

**As per claim 4**, Katayama teaches the apparatus according to claim 1, Katayama further teaches wherein the cameras **102** and **202** are connected to each other (figure 20). *They are connected through microprocessor 11.*

**As per claim 5**, Katayama teaches the apparatus according to Claim 1, Katayama further teaches wherein the processor **11** is configured to manage the imaging modes and to process data according to the determined imaging mode (col 3, lines 25-65).

**As per claim 6**, Katayama teaches the apparatus equipment according to Claim 1, Katayama further teaches wherein the processor is configured to form 3D image information from the data formed by the camera module (col 9, lines 6-13). *Stereoscopic is the same as 3D as cited in the claim.*

**As per claim 8**, Katayama teaches the apparatus according to claim 1, Katayama further teaches wherein the processor is configured to combine the data

formed by the camera module, at least partly to increase the resolution of the image information (col 3, lines 45-65). *The panoramic image resolution is higher than each of the two original images.*

**As per claim 9**, Katayama teaches the apparatus according to claim 1, Ishikawa further teaches wherein the processor is configured to combine the data formed by the camera module, at least partly to permit a panorama-imaging mode (col 1, lines 29-44).

**As per claim 19**, this claim is rejected because it recites the subject matters that were previously discussed in claim 1.

**As per claim 20**, this claim is rejected because it recites the subject matters that were previously discussed in claim 2.

**As per claim 22**, this claim is rejected because it recites the subject matters that were previously discussed in claim 6.

**As per claim 24**, this claim is rejected because it recites the subject matters that were previously discussed in claim 8.

**As per claim 25**, this claim is rejected because it recites the subject matters that were previously discussed in claim 9.

**As per claim 26**, this claim is rejected because it recites the subject matters that were previously discussed in claim 1.

**As per claim 28**, this claim is rejected because it recites the subject matters that were previously discussed in claim 1.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**8. Claims 3 and 7** are rejected under 35 U.S.C. 103(a) as being anticipated by Katayama as applied to claim 1 above, in view of Ishikawa (US 6,549,650).

**As per claim 3**, Katayama teaches the apparatus according to claim 1, Katayama further teaches a display component **401**(figure 3B). Katayama does not explicitly disclose the display component configured on one side of the apparatus, wherein the camera are configured on the opposite side of the apparatus relative to the display component.

However, in an analogous art, Ishikawa teaches display component **73** arranged on one side of the equipment, wherein the camera units (**75a and 75b**) are arranged on



the opposite side of the equipment relative to the display component (figures 12A, 12B and col 19, lines 21-30).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to position Katayama display 401 in the opposite side of the camera units as taught by Ishikawa. It is common in art that the user would look directly at the display and camera point away from the user in order to view and capture real time image.

**As per claim 7**, Katayama teaches the apparatus according to Claim 6, Katayama does not explicitly disclose wherein the processor is configured to process image errors,

However, in an analogous art, Ishikawa teaches a processor **6704** is configured to process image errors (figure 51 and col 46, lines 34-54). *The deviation amount p is analogous to the image errors as cited in the claim.*

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the image errors processing as taught by Ishikawa into Katayama camera so it can effectively correct the parallax problem of the two camera system.

**As per claim 21**, this claim is rejected because it recites the subject matters that were previously discussed in claim 3.

**As per claim 23**, this claim is rejected because it recites the subject matters that were previously discussed in claim 7.

9. **Claim 27** is rejected under 35 U.S.C. 103(a) as being anticipated by Ishikawa in view of Katayama as applied to claim 26 above, in view of Orimoto (US 7,102,686).

**As per claim 27**, Katayama teaches the camera module according to Claim 26, Katayama fails to explicitly disclose wherein an index patterning is configured in the camera module, to lock the distance between the camera units to correspond to the determined imaging mode.

However, Orimoto teaches an image capturing apparatus having a plurality of image capturing modules that can be arranged to capture three-dimensional or panoramic images (abstract). From figure 1, in three-dimensional mode, the second camera **14** is connected to the first camera **12** through the guiding joints poles **32** and joint holes **24**. These guiding joints provide a fixed index patterning that lock the distance between the two camera units as cited in the claim.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate camera guiding joints as taught by Orimoto into Katayama camera module so that the camera units can be reconfigured quickly when the capture mode is switched.

**10. Claims 29-32** are rejected under 35 U.S.C. 103(a) as being anticipated by Ishikawa in view of Katayama as applied to claim 1 above, in view of Inaba US 5,778,268.

**As per claim 29**, Katayama teaches the apparatus according to Claim 1, Katayama does not teach the apparatus comprising a mechanical connection between the camera units, wherein the mechanical connection is configured to cause the turning of the camera units relative to each other to correspond to the current imaging mode in response to the mutual distance between the camera units being altered.

However, Inaba teaches a stereo camera that has two lens shifting cam 17R and 17L that cause the camera lens unit to turn relative to each other when the distance between the two camera optical axis changes (figure 2 and col 4, lines 63-67 to col 5, lines 1-11

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the lens shifting cam as taught by Inaba into Katayama multi eye image pickup apparatus so as to provide a manual override as a back up mode for the image pickup. When the electronics fails to drive the two cameras,

the user can switch to manual override mode and the two cameras can be manually moved to match the capture mode through the shifting cam.

**As per claim 30**, this claim is rejected because it recites the subject matters that were previously discussed in claim 29.

**As per claim 31**, this claim is rejected because it recites the subject matters that were previously discussed in claim 29.

**As per claim 32**, this claim is rejected because it recites the subject matters that were previously discussed in claim 29.

***Examiner's Note***

The Examiner cites particular figures, paragraphs, columns and line numbers in the reference(s), as applied to the claims above. Although the particular citations are representative teachings and are applied to specific limitations within the claims, other passages, internally cited references, and figures may also apply. In preparing a response, it is respectfully requested that the Applicant fully consider the references, in their entirety, as potentially disclosing or teaching all or part of the claimed invention, as well as fully consider the context of the passage as taught by the reference(s) or as disclosed by the Examiner.

## Conclusion

11. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure:

**Bell, David A. et al.** (US 20010026249 A1) Electronic device having a display

**Mashitani, Ken et al.** (US 20050089212 A1) Method and apparatus for processing three-dimensional images

**Thielemans; Robbie et al.** (US 6483555 B1) Universal device and use thereof for the automatic adjustment of a projector

**Hirota; Gentaro et al.** (US 6064749 A) Hybrid tracking for augmented reality using both camera motion detection and landmark tracking

**SANO K** (JP 2007135165 A) Double fold type digital camera has two binocular convex lens combined to single unit and LCD monitor which adjusts open angle according to distance of target

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang V. Le whose telephone number is (571) 270-5014. The examiner can normally be reached on Monday through Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor David Ometz can be reached on (571)272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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